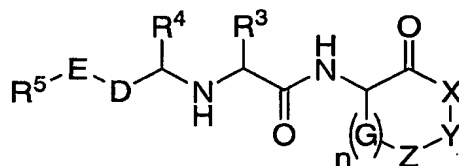


## WHAT IS CLAIMED IS:

1. A compound of the formula:



- 5 wherein X is O or -NR<sup>9</sup>;  
 Y is CR<sup>1</sup>R<sup>2</sup>, -SO<sub>2</sub>, C=O or -NR<sup>9</sup>;  
 Z is CR<sup>1</sup>R<sup>2</sup>, O, S, -SO<sub>2</sub> or -NR<sup>9</sup>;  
 Each G is independently CR<sup>1</sup>R<sup>2</sup>;
- 10 R<sup>1</sup> is hydrogen, halo, or C<sub>1-6</sub> alkyl which is optionally substituted with one, two, or three substituents independently selected from halo or -OR<sup>8</sup>;
- R<sup>2</sup> is hydrogen, halo or C<sub>1-6</sub> alkyl which is optionally substituted with one, two, or three substituents independently selected from halo or -OR<sup>8</sup>;
- 15 or R<sup>1</sup> and R<sup>2</sup> can be taken together with the carbon atom to which they are attached to form a C<sub>3-8</sub> membered ring which is optionally substituted with one or two substituents independently selected from C<sub>1-6</sub> alkyl, halo or keto;
- 20 R<sup>3</sup> is C<sub>1-6</sub> alkyl or C<sub>2-6</sub> alkenyl, wherein said alkyl and alkenyl groups are optionally substituted with C<sub>3-6</sub> cycloalkyl, aryl, heteroaryl or one to six halo;
- R<sup>4</sup> is C<sub>1-6</sub> alkyl substituted with 1-6 halo;
- 25 D is aryl or heteroaryl, wherein said aryl or heteroaryl group, which may be monocyclic or bicyclic, is optionally substituted on either the carbon or the heteroatom with one to five substituents independently selected from C<sub>1-6</sub> alkyl, haloalkyl, halo, keto, alkoxy, -SR<sup>6</sup>, -OR<sup>6</sup>, N(R<sup>6</sup>)<sub>2</sub> or -SO<sub>2</sub>R<sup>6</sup>
- E is aryl or heteroaryl, wherein said aryl or heteroaryl group, which may be monocyclic or bicyclic, is optionally substituted on either the carbon or the heteroatom with one to five substituents independently selected from C<sub>1-6</sub> alkyl, haloalkyl, halo, keto, alkoxy, -SR<sup>6</sup>, -OR<sup>6</sup>, N(R<sup>6</sup>)<sub>2</sub> or -SO<sub>2</sub>R<sup>6</sup>;
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R<sup>5</sup> is hydrogen, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkyloxy, aryl, heteroaryl, C<sub>3-8</sub> cycloalkyl, heterocyclyl, -OR<sup>6</sup>, -C(O)R<sup>6</sup>, -R<sup>7</sup>C(O)R<sup>6</sup>, -C(O)N(R<sup>a</sup>)(R<sup>b</sup>), -C(O)N(R<sup>9</sup>)(R<sup>9</sup>), -C(R<sup>7</sup>)(R<sup>8</sup>)OH, R<sup>7</sup>SR<sup>6</sup>, -C(R<sup>a</sup>)(R<sup>b</sup>)N(R<sup>6</sup>)<sub>2</sub>, C(R<sup>a</sup>)(R<sup>b</sup>)N(R<sup>a</sup>)(R<sup>b</sup>), -NR<sup>7</sup>C(O)NR<sup>7</sup>S(O)<sub>2</sub>R<sup>6</sup>, -SO<sub>m</sub>R<sup>6</sup>, -SO<sub>2</sub>N(R<sup>a</sup>)(R<sup>b</sup>), -SO<sub>2</sub>N(R<sup>7</sup>)C(O)(R<sup>9</sup>), -SO<sub>2</sub>(R<sup>7</sup>)C(O)N(R<sup>9</sup>)<sub>2</sub>, -N(R<sup>7</sup>)C(O)N(R<sup>7</sup>)(R<sup>6</sup>), -N(R<sup>7</sup>)C(O)R<sup>6</sup>, -N(R<sup>7</sup>)C(O)OR<sup>7</sup>, -N(R<sup>7</sup>)SO<sub>2</sub>(R<sup>7</sup>), , -C(R<sup>a</sup>)(R<sup>b</sup>)SC(R<sup>a</sup>)(R<sup>b</sup>)(R<sup>6</sup>), -C(R<sup>a</sup>)(R<sup>b</sup>)NR<sup>7</sup>C(R<sup>a</sup>)(R<sup>b</sup>)(R<sup>6</sup>), -C(R<sup>a</sup>)(R<sup>b</sup>)NH<sub>2</sub>, -C(R<sup>a</sup>)(R<sup>b</sup>)C(R<sup>a</sup>)(R<sup>b</sup>)N(R<sup>a</sup>)(R<sup>b</sup>), -C(O)C(R<sup>a</sup>)(R<sup>b</sup>)N(R<sup>a</sup>)(R<sup>b</sup>), -C(R<sup>a</sup>)(R<sup>b</sup>)N(R<sup>6</sup>)C(O)R<sup>6</sup>, -C(R<sup>a</sup>)(R<sup>b</sup>)C(O)N(R<sup>a</sup>)(R<sup>b</sup>), wherein said groups are optionally substituted on either the carbon or the heteroatom with one to five substituents independently selected from C<sub>1-6</sub> alkyl, halo, keto, cyano, haloalkyl, hydroxyalkyl, -OR<sup>6</sup>, -NO<sub>2</sub>, -NH<sub>2</sub>, -NHS(O)<sub>2</sub>R<sup>8</sup>, -R<sup>6</sup>SO<sub>2</sub>R<sup>9</sup>, -SO<sub>m</sub>R<sup>7</sup>, heterocyclyl, aryl, or heteroaryl;

R<sup>6</sup> is selected from hydrogen, C<sub>1-6</sub> alkyl, aryl, aryl(C<sub>1-4</sub>)alkyl, heteroaryl, heteroaryl(C<sub>1-4</sub>)alkyl, C<sub>3-8</sub>cycloalkyl, C<sub>3-8</sub>cycloalkyl(C<sub>1-4</sub>)alkyl, and heterocyclyl(C<sub>1-4</sub>)alkyl wherein said groups can be optionally substituted with one, two, or three substituents independently selected from halo, alkoxy, cyano, -NR<sup>a</sup>R<sup>b</sup>, -SR<sup>a</sup> or -SO<sub>m</sub>R<sup>a</sup>;

R<sup>7</sup> is hydrogen or C<sub>1-6</sub> alkyl;

R<sup>8</sup> is hydrogen or C<sub>1-6</sub> alkyl;

R<sup>9</sup> is hydrogen, C<sub>1-6</sub> alkyl, C(O)R<sup>7</sup>, C(O)C<sub>1-6</sub> alkyl, C(O)aryl, C(O)heteroaryl, C(O)C<sub>1-6</sub> alkoxy, SO<sub>2</sub>(C<sub>1-6</sub> alkyl), SO<sub>2</sub>(aryl) or SO<sub>2</sub>(heteroaryl), wherein said alkyl groups are optionally substituted with one, two, or three substituents independently selected from halo, alkoxy, cyano, -NR<sup>7</sup> or -SR<sup>7</sup>;

R<sup>a</sup> is hydrogen or C<sub>1-6</sub> alkyl which is optionally substituted with one, two, or three substituents independently selected from halo or -OR<sup>6</sup>;

R<sup>b</sup> is hydrogen or C<sub>1-6</sub> alkyl which is optionally substituted with one, two, or three substituents independently selected from halo or -OR<sup>6</sup>;

or R<sup>a</sup> and R<sup>b</sup> can be taken together with the nitrogen atom to which they are attached or are between them to form a C<sub>3-8</sub> heterocyclyl ring which is optionally substituted with one or two substituents independently selected from C<sub>1-6</sub> alkyl, halo hydroxyalkyl, hydroxy, alkoxy or keto;

n is an integer from zero to two;

m is an integer from zero to two;

or a pharmaceutically acceptable salt or stereoisomer thereof.

2. The compound of Claim 1 wherein R<sup>3</sup> is C<sub>1-6</sub> alkyl optionally substituted with  
5 one to six halo.

3. The compound of Claim 2 wherein D is aryl.

4. The compound of Claim 3 wherein D is phenyl.

5. The compound of Claim 2 wherein E is aryl or heteroaryl, wherein said aryl or  
heteroaryl group is optionally substituted on either the carbon or the heteroatom with one to five halo.

6. The compound of Claim 5 wherein E is phenyl or pyridyl, wherein said phenyl  
15 or pyridyl group may be substituted with one to five halo.

7. The compound of Claim 1 selected from  
N<sup>1</sup>-(2-oxotetrahydrofuran-3-yl)-N<sup>2</sup>-{(1S)-2,2,2-trifluoro-1-[4'-(methylsulfonyl)biphenyl-4-yl]ethyl}-L-  
leucinamide;  
20 N<sup>1</sup>-[2-oxo-1-(phenylsulfonyl)pyrrolidin-3-yl]-N<sup>2</sup>-{(1S)-2,2,2-trifluoro-1-[4'-(methylsulfonyl)biphenyl-4-  
yl]ethyl}-L-leucinamide;  
N<sup>2</sup>-{(1S)-1-[4'-[1-(aminocarbonyl)cyclopropyl]biphenyl-4-yl]-2,2-difluoroethyl}-4-fluoro-N<sup>1</sup>-[(3S,4S)-2-  
oxo-4-(trifluoromethyl)pyrrolidin-3-yl]-L-leucinamide;  
N<sup>2</sup>-{(1S)-2,2-difluoro-1-[4'-(methylsulfonyl)biphenyl-4-yl]propyl}-4-fluoro-N<sup>1</sup>-[(3S)-2-oxo-4-  
25 (trifluoromethyl)tetrahydrofuran-3-yl]-L-leucinamide;  
N<sup>2</sup>-{(1S)-1-[4'-[1-(aminocarbonyl)cyclopropyl]biphenyl-4-yl]-2,2-difluoroethyl}-4-fluoro-N<sup>1</sup>-[(3S,4S)-4-  
methyl-2-oxo-1-(pyridin-2-ylmethyl)pyrrolidin-3-yl]-L-leucinamide;  
N<sup>2</sup>-{(1S)-1-[4'-[1-(aminocarbonyl)cyclopropyl]biphenyl-4-yl]-2,2-difluoroethyl}-N<sup>1</sup>-[(3R)-4,4-difluoro-2-  
oxopyrrolidin-3-yl]-4-fluoro-L-leucinamide;  
30 N<sup>1</sup>-(2-oxopyrrolidin-3-yl)-N<sup>2</sup>-{(1S)-2,2,2-trifluoro-1-[4'-(methylsulfonyl)biphenyl-4-yl]ethyl}-L-  
leucinamide;  
N<sup>1</sup>-[(3S)-1-(methylsulfonyl)-2-oxopyrrolidin-3-yl]-N<sup>2</sup>-{(1S)-2,2,2-trifluoro-1-[4'-  
(methylsulfonyl)biphenyl-4-yl]ethyl}-L-leucinamide;  
N<sup>1</sup>-[2-oxo-1-(phenylsulfonyl)pyrrolidin-3-yl]-N<sup>2</sup>-{(1S)-2,2,2-trifluoro-1-[4'-(methylsulfonyl)biphenyl-4-  
35 yl]ethyl}-L-leucinamide;

$N^1$ -[2-oxo-5,5-bis(trifluoromethyl)tetrahydrofuran-3-yl]- $N^2$ -{(1S)-2,2,2-trifluoro-1-[4'-(methylsulfonyl)biphenyl-4-yl]ethyl}-L-leucinamide;

$N^1$ -(5,5-dimethyl-2-oxotetrahydrofuran-3-yl)- $N^2$ -{(1S)-2,2,2-trifluoro-1-[4'-(methylsulfonyl)biphenyl-4-yl]ethyl}-L-leucinamide;

5 or a pharmaceutically acceptable salt or stereoisomer thereof.

8. A pharmaceutical composition comprising a compound according to Claim 1 and a pharmaceutically acceptable carrier.

10 9. A process for making a pharmaceutical composition comprising combining a compound according to Claim 1 and a pharmaceutically acceptable carrier.

15 10. The use of a compound of Claim 1 for the preparation of a medicament useful in the treatment of: osteoporosis, glucocorticoid induced osteoporosis, Paget's disease, abnormally increased bone turnover, periodontal disease, tooth loss, bone fractures, atherosclerosis, obesity, rheumatoid arthritis, osteoarthritis, periprosthetic osteolysis, osteogenesis imperfecta, metastatic bone disease, hypercalcemia of malignancy or multiple myeloma, in a mammal in need thereof.

20 11. A pharmaceutical composition comprising a compound of Claim 1 and another agent selected from: an organic bisphosphonate, an estrogen receptor modulator, an estrogen receptor beta modulator, an androgen receptor modulator, an inhibitor of osteoclast proton ATPase, an inhibitor of HMG-CoA reductase, an integrin receptor antagonist, or an anabolic agent, a selective cyclooxygenase-2 inhibitor, or a pharmaceutically acceptable salt or mixture thereof.

25 12. The use of a composition of Claim 11 in the preparation of a medicament useful in the treatment of: osteoporosis, glucocorticoid induced osteoporosis, Paget's disease, abnormally increased bone turnover, periodontal disease, tooth loss, bone fractures, atherosclerosis, obesity, rheumatoid arthritis, osteoarthritis, periprosthetic osteolysis, osteogenesis imperfecta, metastatic bone disease, hypercalcemia of malignancy or multiple myeloma, in a mammal in need thereof.

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